

3.11 AIR QUALITY

3.11.1 Applicable Sections in FERC Documents

Please refer to Section 3.12 in the FERC Final EIS and Resource Report 9, Air and Noise Quality, in Exhibit F-1 of GSX-US's original application to FERC.

3.11.2 Issue [37: Wind Patterns](#)¹

Issue Summary

Description of Problem

The air quality section does not discuss wind patterns in the project area. Therefore, it is not possible to determine if specific residential locations may be more susceptible to emissions than other locations.

Ecology Requirement

Include an analysis and discussion of wind patterns for the project area and surrounding region in the environmental review.

Affected Environment

Predominant wind directions in the Cherry Point area are from the south to south-southwest and from the east-northeast. On an annual basis, winds from the south and south-southwest occur with a frequency of about 24%. Winds with an easterly or east-northeasterly component occur about 21 of the time and winds from the west through northwest occur about 20% of the time. Figure 3-5 shows a cumulative wind rose that represents the distribution of the wind direction frequency and wind speed class on an annual basis at Cherry Point for each year from 1995 through 2001 (BP West Coast Products, LLC 2003).

Winds from the west-northwest through northwest become more prominent during the summertime as the Pacific sub-tropical high-pressure zone moves farther north in the eastern Pacific and influences the summertime wind pattern at the site. Wintertime winds tend to have more of a southerly component, as influenced by the frequent passage of migratory storm systems from the west.

Winds with easterly components are frequent and occur during periods of high atmospheric pressure over eastern British Columbia and eastern Washington that causes an outflow of winds through the Fraser River Canyon. Wind speeds can vary significantly, with the highest recorded hourly average wind speed at BP's Cherry Point monitoring site of 33.6 miles per hour in November 1998.

Figure 3-5 Cherry Point Wind Rose

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~~According to data from the National Oceanic and Atmospheric Administration's monitoring program (1994-1999), the average wind speed over a six-year monitoring period was 9 miles per hour (mph). Over that six-year period, the month of January had the highest average wind speed of 9.7 mph and August had the lowest at 7.9 mph. Prevailing wind direction over the monitoring period was 190°. Wind roses from the Bellingham International Airport show a similar trend with the wind blowing from the south to north between the years of 1991-1995.~~

Impacts

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

No additional analysis required.

No Action Alternative

No additional analysis required.

Significant Unavoidable Adverse Impacts

No additional analysis required.

3.11.3 Issue [38: Dispersion Mapping](#)²

Issue Summary

Description of Problem

Under the heading State and Local Regulations, the air quality section of the Final EIS states that, “GSX-US performed preliminary dispersion modeling that indicates impacts below the ASILs.” However, no dispersion mapping is presented.

Ecology Requirement

Include dispersion mapping in the environmental review so that destination areas for project emissions may be identified.

Affected Environment

No additional analysis required.

Impacts

Proposed Action

GSX-US

With regard to the GSX-US project, WAC 173-400-110 states that an emission source is subjected to the Prevention of Significant Deterioration (PSD) permitting program if the new installation is either a major modification to an existing major source or is a major source by itself. Regulated pollutants (nitrogen oxides, carbon monoxide, sulfur dioxide, volatile organic compounds, or particulate matter less than 10 micrometers in size) of major sources have the potential to emit pollutants above what is allowed. Each component (turbine, generator, dehydration unit, and boiler) of the GSX Cherry Point compressor station was modeled and compared to the PSD threshold of 250 tpy. If results showed that the regulated pollutants were above the PSD threshold, further analysis would be necessary. However, results showed that each component of the compressor station is below the PSD major source threshold of 250 tpy. Therefore, the GSX Cherry Point compressor station is not subject to the requirements of the PSD program, and in turn no dispersion modeling is required.

GSX-Canada

In its July 2003 ruling on the GSX-Canada project, the Joint Review Panel concluded that any air quality emissions resulting from the project would be minimal. With respect to greenhouse gases, the panel concluded that, although emissions from the project are very minor in comparison to overall emissions on Vancouver Island, they would contribute to climate change by combining and interacting with emissions from other present and future sources from around the world. However, the panel relied on Environment Canada’s statement that because emissions

resulting from new natural gas pipeline and energy generation projects have been factored into the Government of Canada's outlook, the GSX-Canada project should not compromise Canada's ability to achieve its Kyoto Protocol target.

Terasen Gas Alternative

The proposed compressor stations would require air emission permits under Section 10 of the Provincial Waste Management Act. Legislative authority to issue air emission permits for such facilities rests with the Oil and Gas Commission. TGVI plans to use "dry" low nitrogen oxide (DLN) technology. The DLN technology easily achieves these permit requirements. Such permits and/or permit modifications typically take approximately four months to process, and can be done at the same time with other planning and construction activities (GSX-Canada Application, Appendix D, pg. D-8).

At the LNG facility, equipment that uses hydrocarbon fuel would meet regulatory air emission guidelines. However, the primary compression and pumping equipment at the facility would be electric, thereby minimizing air emissions (GSX-Canada Application, Appendix F, pg. F-6).

No Action Alternative

NorskeCanada does not expect any material impact on the air quality of these communities as a result of the cogeneration facilities. All ambient air quality parameters are expected to continue to meet provincial and federal objectives.

The installation of the cogeneration facilities at the Crofton, Elk Falls, and Port Alberni mills would result in some increased air and water emissions. The Elk Falls and Port Alberni gas turbines would normally use natural gas for firing, but would have distillate capability in the event of natural gas curtailments. Key air emissions would be nitrogen oxides, carbon monoxide, sulfur dioxide, carbon dioxide, volatile organic compounds, ammonia, and low levels of fine particulate.

Under the project proposal, fossil fuel-fired boilers at Crofton, Elk Falls, and Port Alberni would be on standby for all but 10 to 12 days per year when they are required during annual shutdowns of each mill's hog fuel-fired power boilers. This standby status for the fossil fuel-fired boilers would offset some of emissions generated by the new gas turbines installed at each site.

Incremental air emissions and effluent discharges from the infrastructure would be distributed across NorskeCanada's three Vancouver Island pulp and paper facilities. The distribution of these emissions along with the standby status of existing fossil fuel boilers and the lower quantity of natural gas required by the initiative mean that the impact on ambient air quality is almost certainly lower than that modeled for VIGP.

Greenhouse gas emissions estimates are based on the total use of natural gas and distillate fuels at each of the mills. Overall, the net effect of project implementation from its Vancouver Island mills would be an increase of 660,336 tons of carbon dioxide equivalent per year. This represents only 80% of the planned increase with the VIGP (NorskeCanada 2003).

Mitigation Measures

Proposed Action

No additional analysis required.

Terasen Gas Alternative

Additional information on air quality mitigation is not available.

No Action Alternative

NorskeCanada anticipates use of DLN gas turbines in conjunction with proven emissions controls to meet both the provincial and federal air emissions standards relating to the operation of gas-fired turbogenerators. Plans call for the installation and operation of selective catalytic reduction technology that uses ammonia to convert exhaust gas nitrogen oxides into harmless nitrogen and water. DLN duct burners would also be incorporated into each of the facilities for intermittent operation.

NorskeCanada's 2002 greenhouse gas emissions were 59% below 1990 levels, which surpasses Canada's commitment to the Kyoto Protocol of a 6% reduction below 1990 levels.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts have been identified.